

Full Length Research Paper

Barber's knowledge and practice of biological hazards in relation to their occupation: A case of Hawassa Town, Southern Ethiopia

Deresse Daka

College of Medicine and Health Sciences, Hawassa University, Hawassa Ethiopia.

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Many health hazards plus other contagious diseases and skin infections are related to barbers' occupation, to which their clients are exposed to. Barbers' awareness and practice plays a vital part in the hindrance and management of these health related risks. The objective of this study is to assess the knowledge and practice of barbers regarding biological hazards related to their occupation in Hawassa Town, Southern Ethiopia. This is a cross-sectional study conducted from September 1st, 2014 to January 31st, 2015. The overall number of barbers within the town was 1360, of which 516 barbers participated in this study. The sample size determination was done using the formula for a single population proportion by considering 51% knowledgeable barbers from – Jimma Ethiopia, 95% level of confidence with 5% margin of error. About 15% of the none-response rate was added in this study. The systematic random sampling technique was implemented during data collection. By using structured and pre-tested questionnaires, face to face interview was applied to determine knowledge level of the participants. Different statistic methods like multivariate logistic regression were conducted to spot factors associated with knowledge and practice of barbers. Of the 516 barbers, 515 (99.9%) had smart knowledge on biological hazards associated with their profession, whereas 369 (71.5%) practice safe during barbering. An academic status, holder of the business, operating hour and toil expertise of the barbers were associated considerably with the knowledge of the barbers. However, the practices of the barbers were related solely through handiness of ultraviolet (UV) sterilizers in the room and toiling hour. Long practices of barbers with smart knowledge have good association with forestall biological hazards on their profession. However, giving more coaching to the barbers is necessary to prevent biological risks related to their occupation.

Key words: Barbers, hazards, occupation, knowledge, practice, Hawassa.

INTRODUCTION

The term barber is derived from the Latin word *barba* meaning beard. A person whose occupation is hair

cutting, shaving and trimming of beards is called barber ([Http://www.wikipedia.org.com](http://www.wikipedia.org.com), 2013). The common risk

E-mail: drsd200@gmail.com.

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factors in barbers' occupation are razors, scissors, nail files and baby piercing instruments. In the rural area, the barbers are involved in circumcision, incision and drainage of abscesses (Waheed et al., 2011).

The main service of the barber shop is shaving, haircutting and hair reforming for men using different sharp materials. There is need to give attention to the use of sharp instruments at different sites including barber house to minimize the risks of blood borne infections like viruses. It is a serious health problem for both barbers and their clients (Wazir et al., 2008; Khandait et al., 1999).

The barbers' work related infection remains the major cause of morbidity and mortality in human beings particularly in developing and underdeveloped countries due to poverty and overcrowding. Even though many infectious diseases are preventable and treatable in developing countries, personal and environmental hygiene, ignorance and poor political commitments persist (Wazir et al., 2008, Khandait et al., 1999).

An ancient profession called barbering is intensively associated with the use of blades, towels, knives and combs, etc. If these are not appropriately disinfected, it leads to transmission of a range of infections, which include fungal infections, infestations of head louse, scabies, staphylococcus infection, human immunodeficiency virus (HIV), hepatitis B and C viruses, etc (Amodio et al., 2010). A large number of residents receive services from barbers in our society. Barbers' profession and work place may be a possible group for the spread of various infections related to their job to which their visitors are exposed (Beyen et al., 2012). Hence, awareness about these health hazards among barbers would play a vital role in the prevention and control of these infections. The purpose of our study is to assess awareness among barbers regarding health hazards related to their profession and to identify practices linked to acquisition of infections in barbers' shops.

METHODS

Study design

Cross sectional study was carried out in Hawassa town involving all barbers with the help of pretested questionnaire through interview method.

Study area

The study was conducted in selected 8 sub-cities of Hawassa town found in the technology village of Hawassa University in Sidama Zone, Southern Ethiopia. It was conducted from September 1st 2014 to January 31st, 2015.

Source population

The source and study population were all barbers in 8-sub cities of Hawassa town.

Study population

The study population was actively working barbers in the selected sub-city where the actual sample is drawn from.

Sampling strategy

Approximately 1360 barbers render services to the residents in the town. Five hundred and sixteen barbers were randomly selected to participate in this study. About 65 barbers were interviewed from each sub-city. The structured number and name of the barber's house were obtained using systematic random sampling system. From each barbers' house, the clients participated in this study using lottery system. The sample size was determined using the formula for single population proportion by considering 51% proportion of knowledgeable barbers (Zewudie and Kurkura, 2002) with 95% level of confidence. Five percent (5%) margin of error and 15% of none response rate were included.

Inclusion and exclusion criteria

An individual worker assisting the main workers was excluded. All permanent barbers were included.

Data collection

A standardized pre-tested questionnaire was provided to the workers, and was convinced to provide actual information during interview.

Data quality management

Ethical clearance was obtained from the institutional ethical committee. Voluntarily participated individuals were clearly informed about the purpose of the study. An informed consent was obtained from the willing participants. Only the consented individuals were involved. A structured and pretested questionnaire was used for the study which included the personal details of the participants such as age, education, income, duration of profession and knowledge of risk factors of their occupation.

Data were collected by interview method and by informal inspection of workplace, after informed consent was taken. Data collected were tabulated in Microsoft excel sheet, and statistical analysis was done using Open-Epi info software. Chi-square test was applied for proportions of $p < 0.05$ considered for level of significance.

Ethical clearance was obtained from College of Medicine and Health Sciences, Hawassa University-Institutional Ethical Review board IRB, and consent form was signed by each individual before data collection.

RESULTS

Socio-demographic characteristics of barbers

The response rate of this study was 100%. A total of 516 study subjects were included in this study, among which 410 (79.5%) were males and the remaining were females. About 218 (42.2%) were singles, 290 (56.2%) were married and 8 (1.6%) were divorced. The mean (standard deviation) age was 26.8 (± 3.12) years (ranging from 15 to 38 years). The average numbers of barbers

Table 1. Socio demographic characteristics of barbers in Hawassa Town.

Variables	n (%)	
Age	17-19	2 (0.4)
	20-24	104 (20.2)
	25-29	300 (58.1)
	30-34	104 (20.2)
	35-39	6 (1.2)
Sex	Male	410 (79.5)
	Female	106 (20.5)
Religion	Orthodox	253 (49.0)
	Protestant	251 (48.6)
	Muslim	9 (1.7)
	Others	3(0.6)
Education	Grade 1-8	7(1.4)
	Grade 9-10	297(57.6)
	Grade 11-12	86(16.7)
	12 and above	126(24.4)
Marital status	Single	218 (42.2)
	Married	290 (56.2)
	Divorced	8 (1.6)
Working hours per day	≤8	36 (7.0)
	>8	480 (93.0)
Work experience	<1year	94 (18.2)
	1-3	189 (36.6)
	3-5	124 (24.0)
	>5 years	109 (21.1)
Number of barbers per shop	only 1	148 (28.7)
	>1	368 (71.3)
Holder of the barbers	My Own	66 (12.8)
	Share holder	90 (17.4)
	Haired by others	360 (69.8)
TV/Radio access	Yes	396 (76.7)
	No	120 (23.3)
Towel sterilization access	Yes	131 (25.4)
	No	385 (74.6)
UV sterilization	Yes	485 (94.0)
	No	31 (6.0)
Took training	Yes	510 (98.8)
	No	6 (1.2)

per house were four. Everyday mean (standard deviation) revenue of the participants was 27.65 (\pm 19.32) Ethiopian birr. The dominant religions of the study participants were orthodox 253 (49.0%) and protestants 251(48.6%). About 396 (76.7%) respondents have TV and radio in their

working rooms (Table 1).

Knowledge level of the barbers

Five hundred and fifteen 515 (99.8%) respondents had

Table 2. Source of information regarding biological hazards related to barbers' work.

Variables	Yes, n (%)	No, n (%)
Television	213 (41.3)	303 (58.7)
Newspaper	71 (13.8)	445 (86.2)
Radio	3 (0.6)	513 (99.4)
Health care centers	215 (41.7)	301(58.3)
From training	14 (2.7)	502(87.3)

good knowledge about diseases transmission mechanisms from person to person during their work. They knew the existence of biological hazards related to their profession and source of infection from different sources; for instance from health care center, 215 (41.7%), television (TV) 213 (41.3%), from training related to health and safety, 14 (2.7%), by reading newsletters related to health and safety 71 (13.8) and from radio 3 (0.6%) (Table 2). Four hundred and twelve, 412 (79.8%) and 383 (74.2%) participants had good knowledge about human immunodeficiency virus (HIV/AIDS) and dandruff (Table 3).

However, the remaining had relatively less knowledge about fungal infection, 131(25.4%), viruses like Ebola, 97 (18.8%), HBV and HCV, 4 (0.8%), head lice, 56 (10.9%) and other skin infections, 22 (4.3%); for the others, there was a poor knowledge about eczema, allergy, staphylococcus and streptococcus.

Barbers' practice to prevent biological hazards

About 147(28.5%) respondents do not wash hands for new customers, while 79 (15.3%), 38 (7.4%), 71 (13.8%), 61 (11.8%), 60 (11.6%) and 3 (0.6%) neither change nor sterilize razors, shavers, scissors, brushes, combs and towels while barbering the hair of different customers, respectively. Of the total study participants, 79 (15.3%) neither wash nor change apron for new customers during barbering (Table 4). In general, only 98 (18.9%) participants practice safe while barbering.

More than 369 (71.5) work safely all the way while barbering the hair of different customers. In this study, about 496 (97.3%) prefer dry hot oven sterilization technique to autoclaving, 12 (2.4%) and 2 (0.4%) direct flaming. About 515 (99.8%) barbers commonly apply disinfection on their daily practice. However, only 147 (28.5%) use alcohol and 365 (70.9%) use bleach called "Barakina". 418 (81.2%) get their disinfectants from any unknown shops, while about 318 (61.7%) of them do not know the concentration of their disinfectants at all. Even though 447 (86.8%) of the Hawassa town barbers are inspected, the lion share of the inspection is done by health professionals, 482 (93.6%) from the health center.

About 258 (50%) of the barber houses are inspected

every 6 months (Table 5).

DISCUSSION

This study reveals the biological hazards associated with barbers' knowledge and practice of their work in the Hawassa town, Southern Ethiopia. Thus, out of the total study subjects, about 515 (99.8%) have good knowledge about biological hazards related to their work, which is higher than the studies done in Gondar, Ethiopia (78%) (Beyen et al., 2012), Jimma, Ethiopia (51%) (Zewudie and Kurkura, 2002), Pakistan, Kharian City of Gujrat District (42%) (Wazir et al., 2008), Rawalpindi and Islamabad (39.6%) (Waheed et al., 2010), Bahra Kahu, Islamabad (38%) (Chaudhry et al., 2010) and Nigeria (24.8%) (Ibrahim and Tanimomo, 2007). One of the possible reasons causing disparity in the knowledge level could be the amount of health hazards covered to measure the awareness of the barbers by the studies. This study covers more health hazards than affirmed studies.

Correspondingly, the study was conducted in Ethiopia, Gondar on knowledge of HBV/HCV (11%), *Staphylococcus* and *Streptococcus* (0%) (Beyen et al., 2012). Moreover, less knowledge was observed in our study as compared to the study conducted at Gondar, Ethiopia on HIV transmission. This may be due to less information from different sources. However, it is better with the study conducted in Nigeria, Ibadan on knowledge of HIV (16.7%) (Arulogun, 2009).

Even though the access to TV/radio is better in Hawassa barber shop (76%) than Gondar, Ethiopia (13%) (Beyen et al., 2012), they get less information from TV/Radio about health hazards. This may be due to less attention given to TV/Radio programs. This study showed that there is a considerable relationship between barbers' knowledge about biological hazards to their work and educational level (Table 6). Barbers who had an education status of 12 and above, secondary 9-10 and secondary 11-12 were two times more likely to have good knowledge about biological hazards interrelated to their work as compared to those with primary educational status [AOR=2.25, 95% CI: 1.69, 6.80], [AOR=3.28, 95% CI: 1.58, 6.54] and [AOR=3.60, 95% CI: 1.01, 8.52], respectively.

The result is consistent with the study conducted in Jimma Ethiopia (Beyen et al., 2012), Pakistan, Kharian City of Gujarat (Wazir et al., 2008), Rawalpindi and Islamabad (Chaudhry et al., 2010) and Nigeria, Ibadan (Arulogun, 2009) which suggests that barbers who had higher schooling were found to have better information on health hazards related to barbering indirectly from their formal education.

A barber employed by others are more than 4.85 and 1.89 times more likely to have knowledge about biological hazards related to their work as compared to those who

Table 3. Knowledge of barbers on each biological hazard related to their work.

Health hazards	Good knowledge, n (%)	Poor knowledge, n (%)
Dandruff	383(74.2)	133(25.8)
Fungus	131(25.4)	385(74.6)
HIV/AIDS	412 (79.8)	104(20.2)
HBV/HCV	47 (9.1)	469 (90.9)
Staphylococcus	0	516(100)
Streptococcus	0	516(100)
Ringworm	0	516(100)
Ebola	97 (18.8)	419 (81.2)
Head lice	460 (89.1)	56(10.9)
Other skin infection	24 (4.7)	492 (95.3)

Table 4. Barbers' practice to prevent biological hazards.

Practice of barbers	Yes, n(%)	No, n(%)
Use of Antiseptic lotion	516(100)	0(0)
Separate set of instruments for each costumer	478 (92.6)	38 (7.4)
Use sterilization before	514 (99.6)	2(0.4)
Use sterilization now	510 (98.8)	6 (1.2)
Disinfecting instruments after the use	502(97.3)	14 (2.7)
Use disinfection currently	515(99.8)	1(0.2)
Use clean towels	501(97.1)	15 (2.9)
Use clean comb	492(95.3)	24 (4.7)
Comb cleaned after using for each costumer	438 (84.9)	78 (15.1)
Use new blade for each costumer	448(86.8)	68 (13.2)
Wash hands for new customers	369 (71.5)	147(28.5)
Change or sterilize razors	437(84.7)	79(15.3)
Change or sterilize shavers	478(92.6)	38 (7.4)
Changing or sterilize scissors	445(86.2)	71 (13.8)
Change or sterilize brushes	455(88.2)	61(11.8)
Change or sterilize combs	456(88.4)	60 (11.6)
Change or sterilize towels	513(99.4)	3 (0.6)
Change or sterilize apron	437(84.7)	79(15.3)

Table 5. Observational result of barbers' practice to prevent biological hazards.

Variables	Yes, n(%)	No, n(%)
Disposal of used sharps and cut hairs	508 (98.4)	8(1.6)
Access of municipality dustbin	503 (97.5)	13(2.5)
Access of water supply	515 (99.8)	1(0.2)
Access of electric supply	516 (100)	0 (0)
Sound pollution	235 (45.5)	281(54.5)
Access of TV/Radio	396 (76.7)	120 (23.3)
Room decoration	384(74.4)	132(25.6)
Access of Newspaper/magazine	401(77.7)	115(22.3)
Towel sterilizer access	158(30.6)	358 (69.4)
UV sterilizer access	249(48.3)	267(51.7)
Access of sink	249(48.3)	267(51.7)
Access of first aid kit	157(30.4)	359(69.6)

Table 6. Risk factors associated with barber's knowledge and biological hazards.

Variables	Knowledge					
		Good n	Poor n	Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
Education	12 and above	8	118	4.68(2.08,17.66)	2.25(1.69,6.80)	0.002
	Secondary (11-12)	6	80	5.88(2.27,18.16)	3.28(1.58,6.54)	0.038
	Secondary (9-10)	102	195	6.72(3.69,28.44)	3.60(1.01,8.52)	0.029
	Primary (1-8)	5	2	1		
Working hour	≤8hrs	76	168	1		
	>8hrs	34	238	2.44(3.02,9.80)	2.11(1.99,5.75)	0.000
Work experience	<1 year	16	60	1		
	1-3 years	14	150	1.65(2.64,9.00)	1.45(1.33,7.25)	0.000
	3-5 years	8	194	2.50(2.14,6.03)	2.61(2.44,9.89)	0.000
	>5 years	12	72	3.02(1.89,8.80)	2.80(2.33,8.23)	0.000
Owner of the barbers	My own	14	52	1		
	Shared	38	52	2.41(1.89,4.89)	1.89(1.46,4.88)	0.006
	Employed by others	26	334	3.86(2.08,10.68)	4.85(1.89,11.60)	0.001
Number of barbers per shop	Only 1	46	102	1.88(1.24,4.25)		
	>1	28	340	1		
Availability of UV sterilizers	Yes	45	440	1.00(0.40,1.4)		
	No	12	19	1		
Took training	Yes	60	550	2.40(1.46,4.48)		
	No	2	4	1		

are self-owners [AOR=4.85, 95% CI: 1.89, 11.60]. Similarly, the shared barbers' owners have more knowledge than self-owners [AOR=1.89, 95% CI: 1.46, 4.88]. The likely reason of this is the barbers' knowledge disparity between these groups and educational levels of the groups. Different studies showed that the shared barbers need higher education level to provide better service.

Barbers who spend less than eight hour per day on work are likely to have knowledge about biological risks related to their occupation as compared to those who spend more than eight hour per day on work [AOR=2.11, 95% CI: 1.988, 5.745]. This result is contradicting with the study conducted in Jimma, Ethiopia, Pakistan, Kharian city of Gujrat (Wazir et al., 2008). This might be because those who have more experience in their daily work are exposed to the problems and know the source of biological hazards. Moreover, they may have good access to media since they have media line in their working place.

According to this study, barbers who had better job practice know the risks of the biological hazards very well. Therefore, more than five years, 3-5 years and 1-3 years were more than two times more likely to be knowledgeable about biological hazards associated with their labor than those who had one or less work

experience [AOR=2.80, 95% CI: 2.33, 8.23], [AOR=2.61, 95% CI: 2.44,9.89] and [AOR=1.45, 95% CI: 1.33,7.25]. This result is in line with studies conducted in Jimma, Ethiopia, Pakistan, Kharian City of Gujrat (Wazir et al., 2008). The barbers are more experienced as they encounter hazards and have increased knowledge.

In this study area, the barbers' practice to decrease biological hazards related to their work is slightly low. Accordingly, about 369 (71.5%) practice safe to avert biological risks associated with their work.

This finding is higher than the studies conducted in Jimma Ethiopia, Pakistan; Kharian City of Gujrat District (Wazir et al., 2008), Bahra Kahu, Islamabad (Chaudhry et al., 2010), Rawalpindi and Islamabad and Sana'a City, Yemen (Al-Rabeel and Dallak, 2011). However, the stated studies used a solitary practice to define the practice of the study subjects.

This study also revealed that the presence of UV light more likely supported the barbers to practice safely in their working room than those who had no UV light (Table 7). Also, those barbers who spent more than 8 h a day on work were more than three times likely to apply safety knowledge to avert biological hazards associated with their work as compared to those who spent eight or less hours on work. The likely explanation for this could be that barbers who work more than 8 h per day got more

Table 7. Risk factors related to barbers' practice towards prevention of biological hazards.

Variables		Practice				P-value
		Safe n	Unsafe n	COR (95% CI)	AOR (95% CI)	
Presence of UV sterilizer	Yes	57	263	4.91(2.09,8.66)	2.88(1.48,5.52)	0.003
	No	22	174	1		
Presence of towel sterilizer	Yes	25	63	3.42(1.80,6.20)	1	
	No	54	374	1		
Working hour	≤8hrs	18	232	1	1	0.000
	>8hrs	61	205	4.12(2.21,10.12)	3.25(1.49,7.35)	

OR= Odds ratio, COR= crude OR, AOR=adjusted OR.

profits so that they can buy safety materials like ultra violet light sterilizer machine which are significant to remove health related hazards.

There were certain limitations in this study, depending on self- reported data of the participants which was liable to social desirability bias under or over estimation. Also, this study has not addressed the effect of attitude of the barbers on awareness and performance or practice. Although, this study tried to address some important factors, duration for sterilization and the type of chemical disinfectants were not addressed. Also, this study did not address the microbiological analysis.

Conclusions

In conclusion, the knowledge level of the employed barbers in Hawassa area was very good; however, greater part of the barbers practice is risky during their work.

Accessibility of UV sterilizers, advanced equipment in the barbers' room and more working hours had significant association with the application of the barbers. Also, educational level, being self -owners, working hours and work experience had significant association with the knowledge of the barbers. Thus, provision of training on advancement of their knowledge minimizes the health risk related to their occupation. Also, it is better to address microbiological analysis of the tools that they use in barbering room.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

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